

## SUMMARY

5 The present invention concerns a process for controlled radical polymerisation of acrylic acid and its salts in a reactive medium constituted solely of water.

The invention also concerns homopolymers and copolymers of acrylic acid obtained by the polymerisation process.

10 Finally, the invention concerns the use of the said homopolymers and copolymers of acrylic acid in fields of industry such as the paper field and in particular the coating of paper and the mass-filling of paper, the oil field, or the fields of paint, water treatment, detergency, ceramics, cements or hydraulic binders, public works, inks and varnishes, sizing of textiles or the finishing of leather.

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